

REMARKS

Reconsideration and allowance of the subject application are respectfully requested.

Claims 9-15, 24-32, and 33-37 stand rejected under 35 U.S.C. §112, second paragraph as being indefinite. The Examiner specifically complains that the limitation "whether a condition in the system indicates that a downlink cell boundary between the macro cell and micro cell and an uplink cell boundary between the macro cell and the micro cell should be unbalanced" does not "define the cell coverage area for the cell boundary between the macro cell and micro cell." Applicant refers the Examiner to Figures 4 and 5 which provide good example illustrations of the cell boundaries being referred to. In addition, Applicant has amended claims 9, 24, and 33 to specify that it is a "downlink micro cell boundary" where "the downlink cell boundary is associated with an effective range of a transmission from the micro cell base station." Similarly, these claims now refer to "an uplink micro cell boundary" where "the uplink cell boundary is associated with a range of transmission from the mobile station to the micro cell base station." It is believed that these amendments should overcome the Examiner's concerns raised in the office action. Withdrawal of the rejection under 35 U.S.C. §112, second paragraph is respectfully requested.

Claims 1-3, 5, 9-12, 14, 16-17, 23-24, 26-28, and 33-34 stand rejected under 35 U.S.C. §103 as being unpatentable over Weidong et al. in view of Takeo. This rejection is respectfully traversed.

Weidong describes a "breathing function" in a Hierarchical Cell Structure (HCS). Breathing function is defined on page 2413 as "adjusting the transmitted pilot power based on the traffic load of the cells to make the forward and reverse coverage balance."

Equation 4 describes how that "balance between the coverage of the reverse and the forward is achieved." *Id.* Weidong further states that the "target of the breathing function is to balance the coverage between the reverse and the forward so as to make the mobile access the system with the least transmitted power." *Id.* So the Examiner rightly concludes that Weidong does not establish "a downlink communication cell boundary between the macro cell and the micro cell different from the uplink communication cell boundary," as recited in claim 1. Indeed, Weidong teaches away from a central feature of the present invention which is to unbalance--rather than balance--the uplink and downlink HCS cell boundaries.

The Examiner relies on Takeo which teaches a base station selection technique in both the uplink and the downlink under "non-uniform traffic." In other words, there may be considerably more data sent in the downlink direction than in the uplink direction, thereby producing a traffic load asymmetry between the uplink and the downlink. When Takeo states "reduce capacity the downlink," Takeo means that when orthogonality degrades, the downlink capacity is decreased. Regarding the phrase "location of cell boundary for downlink varies [according to the lost orthogonality]," Takeo discloses on page 1807, right column, lines 8-13 that orthogonality (a lower F_0) in the downlink, the "optimum location of the cell boundary is similar to that in the uplink." This means that the cell boundary is unbalanced when orthogonality is high, i.e., $F = 1$, corresponding to an increase in downlink capacity with the higher orthogonality. At best, Takeo simply *observes* that the cell boundary may shift as a result of a variety of factors including asymmetry in traffic load, multi-path fading, interference, and unevenness in total transmission power in the downlink between cells. But this is not the same as actually determining and then

establishing an uplink communication cell boundary between a macro cell and a micro cell and determining and establishing a downlink communication cell boundary between those cells that is different from the uplink communication cell boundary.

Another words, the inventor realized the value, for example in the context of an HCS, of purposely unbalancing the uplink and downlink cell boundaries. Takeo does not purposely unbalance the cell boundaries. Rather, Takao merely observes that some shifting of cell boundary may occur as a result of one or more non-orthogonality phenomena.

Regarding claims 9 and 34, Takeo does not determine any condition in the system which indicates that the downlink micro cell boundary and the uplink micro cell boundary should be unbalanced. Again, Takeo simply acknowledges passively that the boundary may not be balanced. There is no teaching in Takeo, that if such a condition is met, of intentionally "reducing the downlink micro cell boundary to effect an unbalance between the uplink and downlink micro cell boundaries."

Thus, even if Weidong and Takeo could be combined, for purposes of argument only, they fail to teach all the features recited in the independent claims. Moreover, there is no proper motivation to combine the teachings of Weidong and Takeo. The primary goal of Weidong's breathing function is to "achieve *balance* between the coverage of the reverse and forward of the HCS." See the Abstract. Clearly, it would be contrary to this fundamental purpose of Weidong to modify Weidong in the manner proposed by the Examiner where unbalanced links are acknowledged to exist in some circumstances. If that modification were adopted in Weidong, then Weidong would be rendered inoperable for its primary goal/purpose. The Federal Circuit has held that a proposed modification which would

render a prior art reference inoperable for its intended purpose is inappropriate for an obviousness inquiry. *In re Fritch*, 972 F.2d 1260, 1265-66 (Fed. Cir. 1992).

Thus, the obviousness rejection based on Weidong and Takeo fails both because it does not teach the combination of features recited in the independent claims and because there is no proper motivation to combine their teachings as proposed by the Examiner. Withdrawal of the obviousness rejection is respectfully requested.

In addition, multiple features from the rejected dependent claims are also not disclosed or suggested by the combination of Weidong and Takeo. For example, claim 5 recites that the "downlink communication cell boundary is established by decreasing a detected power level of a signal transmitted by the micro cell." The Examiner refers to Weidong, page 2413, left column and the pilot signal. The fact that one base station pilot is transmitted at a lower power than the other is not what is being claimed. Rather, the power level actually detected is then decreased at the mobile, e.g., by some predetermined value.

Claims 6-7, 15, 21, 22, and 32 stand rejected under 35 U.S.C. §103 as being unpatentable over Weidong in view of Takeo and further in view of U.S. Patent 6,233,299 to Ranta et al. This rejection is respectfully traversed.

Ranta describes an interference canceller that reduces co-channel interference, which is inter-cell interference, in a TDMA system. In contrast, the rejected claims relate to a CDMA system. Moreover, claims 7 and 22 recite that the interference canceller in the CDMA system cancels intra-cell interference. These features are lacking in Ranta.

Claims 4, 8, 13, 18-20, 25, 29, 30-31, and 35-37 stand rejected under 35 U.S.C. §103 as being unpatentable over Weidong, Takeo, and further in view "well-known prior art."

This rejection is respectfully traversed.

The Examiner takes official notice of several claimed features. Applicant respectfully requests that the Examiner supply a reference to support each official notice position. Applicant respectfully submits that simply finding a reference that discloses some generic teaching, e.g., beam tilting, is not all that it is claimed in this application. For example, the claims that recite determining the mobile station velocity also recite that when such a mobile velocity exceeds a predetermined velocity, the downlink micro cell boundary is purposely decreased, e.g., to deter unnecessary handover to the micro cell. Applicant respectfully submits that it is not well-known to make this affirmative reduction in micro cell boundary under these particular circumstances. The same is true of affirmatively reducing the broadcast signal power in order to unbalance the cell boundaries. With regard to claims directed to employing an offset to reduce a detected power level of a pilot transmitted by the micro cell base station, these claims are not simply directed to employing offsets. Instead, they use an offset as a way to unbalance the downlink and uplink cell boundaries. A reference that shows each official notice feature in the particular context claimed is respectfully requested.

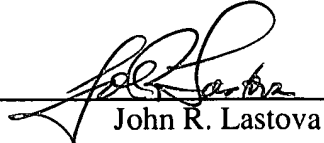
The application is in condition for allowance. An early notice to that effect is earnestly solicited.

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Respectfully submitted,

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